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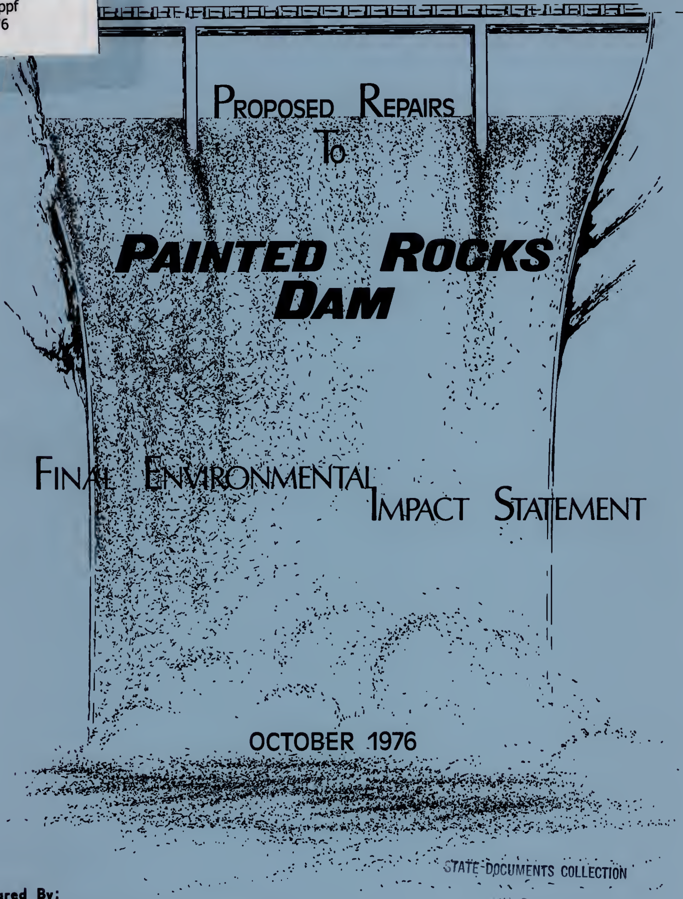

# PROPOSED REPAIRS TO

# PAINTED ROCKS DAM

## FINAL ENVIRONMENTAL IMPACT STATEMENT

OCTOBER 1976

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October 8, 1976

Following is the Final Environmental Impact Statement for the proposed repairs to the Painted Rocks Dam on the West Fork Bitterroot River. This action is proposed by the Water Resources Division, Department of Natural Resources and Conservation. This statement includes the Department's recommended alternative for repairing Painted Rocks Dam. Also included are public comments submitted concerning the proposed repairs and the Department's response to these comments. Finally, the statement includes new information; in particular, cost analysis of various alternatives that was not available when the Draft Environmental Impact Statement was circulated.

The Department will proceed with repairs to the dam by mid-November 1976, under Uniform Rules provisions of the Montana Environmental Policy Act pertaining to emergency situations (MAC 36-2.2(6)-P250(6)). A 30-day period will be allowed for review and comment on this Final Environmental Impact Statement before actual repairs commence at the dam site; however, draining of the reservoir, advertising for bids, and other incidental actions have commenced and will continue throughout this period.

This Final Environmental Impact Statement was prepared in compliance with the Montana Environmental Policy Act, Section 69-6504(6)(3), and was transmitted to the Environmental Quality Council and Governor on October 8, 1976.

Sincerely,

Wayne A. Wetzel

WAYNE A. WETZEL
ENVIRONMENTAL COORDINATOR

WAW:jkd
Enclosure

# FINAL ENVIRONMENTAL IMPACT STATEMENT

# PROPOSED REPAIRS
# TO
# PAINTED ROCKS DAM

Prepared by

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RESOURCES DIVISION

Submitted Pursuant to:

Montana Environmental Policy Act
Section 69-6504(b)(3)

October 1976

# TABLE OF CONTENTS

Page

I. Summary. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1

II. Description . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
    Present Condition
    Proposed Action
    Duration and Timing of Proposed Repairs

III. Additional Study . . . . . . . . . . . . . . . . . . . . . . . . 8
    Pumping 100 cfs Over Spillway
    Breaching the Dam
    Construction of an Additional Outlet Tunnel
    Construction of a Gate at the Intake Structure of the Existing Tunnel
    Summary

IV. Impacts. . . . . . . . . . . . . . . . . . . . . . . . . . . . . 17
    Economic Impact
    Fisheries Impact

V. Agencies and Individuals from Whom Comments Have Been Received and the Departmental Response. . . . . . . . . . . . . . . . . . . . . 19
    Written Comments
    Summary of Verbal Comments Received at the Public Meeting
    Attendance at the Public Meeting

## LIST OF ILLUSTRATIONS

Page

Photo 1. View from Within Painted Rocks Outlet Tunnel Looking Upstream at Operating Gate and Surrounding Damage in Transition Area . . . . . . . . . . . . . . . . . . . . . . . 3

Figure 1. Remodeled Transition Area - Painted Rocks . . . . . . . . . . 5

Figure 2. Schedule for Painted Rocks Repair . . . . . . . . . . . . . . 7

## LIST OF TABLES

1. Cost Estimate for Pumping 100 cfs Over the Spillway Crest from the Dead Storage Level . . . . . . . . . . . . . . 9

2. Average Inflow and Outflow at Painted Rocks Lake. . . . . . 10

3. Cost Estimate for Breaching Painted Rocks Dam . . . . . . . 12

4. Cost Estimate for Construction of Additional Outlet Tunnel . . . . . . . . . . . . . . . . . . . . . . . . . . 14

5. Cost Estimate for Construction of a Gate at the Intake Structure of the Existing Tunnel . . . . . . . . . . . 15

6. Summary of Alternatives, Additional Studies, and Corresponding Cost Estimates. . . . . . . . . . . . . . . . . 16

# SUMMARY

The Draft Environmental Impact Statement (EIS) on the Proposed Repairs to Painted Rocks Dam was released on August 7, 1976. Reference should be made to the draft for information not repeated in this Final EIS.

The need for repairs to the outlet tunnel and tower at Painted Rocks has been established through information obtained from qualified engineers. They reiterate the severity of the cavitation problem and the immediate need for action. Based on this assessment, the Department of Natural Resources and Conservation (DNRC) will proceed with the proposed repairs this fall. A specific description of this proposed action is discussed on the following pages.

The Montana Environmental Policy Act (MEPA) allows the Department to take or permit action having a significant effect on the human environment if an emergency situation exists prior to or develops during the preparation of an EIS (MAC 36-2.2 (6)-P250 (6)). It has always been the Department's contention that the cavitation in the Painted Rocks Dam outlet tunnel poses an immediate threat to the integrity of the dam structure in the area of the outlet gates. The proposed repairs represent an emergency action taken by the Department to prevent possible loss of human life and property below the dam. This emergency action has, in reality, already begun through preparatory phases of advertising for bids and draining the reservoir.

The Draft EIS and this Final EIS have been written in an attempt to assess the impacts of the repair action, inform the public of the action taken and alternatives that were evaluated, and to mitigate adverse impacts as much as possible, given time and budget constraints. The entire EIS process although not required was pursued in this emergency action because draining of the reservoir prior to the actual repairs has allowed the Department time to undertake this EIS study.

Written comments received by the DNRC prior to September 7, 1976, appear at the conclusion of this report. Answers to these are included along with verbal comments given at the public meeting held on September 7, 1976, to discuss the proposed repairs.

# DESCRIPTION

## Present Condition

Just prior to the release of the Draft EIS, several outlet tunnel inspections were made. For the first time since November 12, 1975, the tunnel gates sealed on July 29, 1976, enabling an investigation of previously discovered cavitation damages. At that time as well as on August 3, 5, and 31, engineers observed the conditions in the tunnel which are shown in Photo 1 taken on August 5, 1976.

The outlet tunnel has undergone some increase in damage. All remaining steel plates are secure; however, the concrete underneath the section of steel plate that was torn off has continued to erode. At this point a hole, six inches deep and equally as wide, is continuing to enlarge. Another hole closer to the gate frame has appeared and is only several inches away from the upstream portion of the gate. This indicates that control with the operating gate may be lost if this cavity enlarges, making the use of the emergency gate imperative.

The large hole in the tunnel floor has stabilized at a level incorrectly reported in the Draft EIS as natural rock. It is actually a sand-cement mixture known as grout that was used during the 1954 repairs. This grout layer is several feet thick and has not eroded any deeper or wider than when it was first discovered during the September 1975 annual inspection.

Adjacent to the downstream end of the steel-plated floor is another area in which additional concrete and reinforcing steel losses have occurred. Although this volume of additional concrete loss is minimal, it is in the transition area which is a critical location.

Recent inspection trips have also revealed increased damage to the operating gate tower. Spalling of the concrete is occurring on all four walls at a point approximately 16 feet up from the tunnel floor. This deterioration is several inches deep on the wall between the operating and emergency gate towers and only minimal (surface spalling) in most other locations.

This present condition of the outlet tunnel and tower is evidence of the immediate need of repair actions. The earliest possible time to commence work is this fall and winter; the following proposed action is scheduled to begin by mid-November 1976.

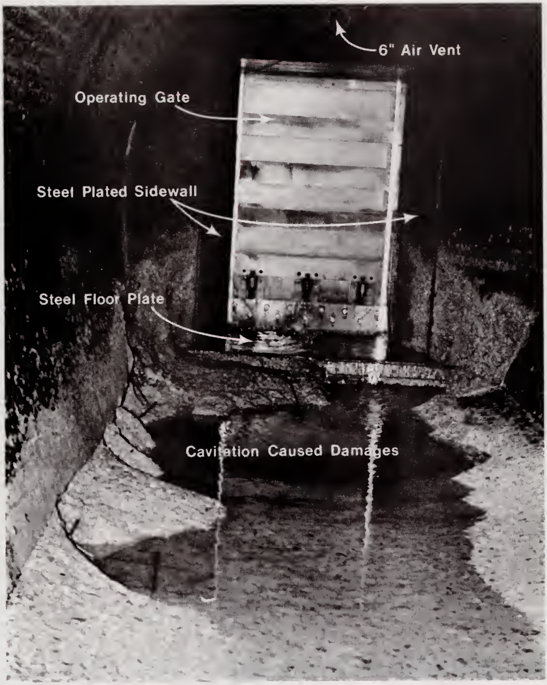


Photo 1 - View from within Painted Rocks outlet tunnel looking upstream at operating gate and surrounding damage in transition area.

## Proposed Action

The DNRC intends to implement the proposed action (repairs to Painted Rocks Dam) by mid-November 1976. This action will entail repair of the deteriorating gate tower, construction of a newly designed transition area, and installation of a bypass pipeline through the outlet tunnel to provide minimal downstream flows.

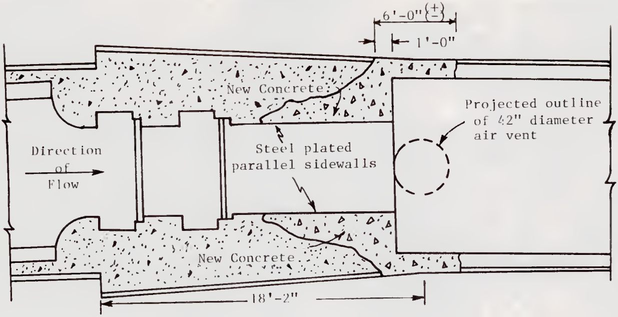
Harza Engineering Company has completed the design for the repairs to the outlet tunnel and gate tower at Painted Rocks Dam. Figure 1 on the following page indicates how this design modifies the existing outlet tunnel transition. The configuration of this transition will be such that the parallel sidewalls from the gate area open suddenly to the almost circular tunnel. The present horizontal floor plate will be raised at the downstream end to form a slightly inclined ramp. These alignment changes will allow more air to cushion the flow of water as it emerges into this abrupt transition area.

The above suggested design places significant importance on the aeration of the modified transition in the attempt to halt the destructive forces of cavitation. Therefore, the proposed repairs call for drilling of a 48-inch diameter air shaft through the earth fill and underlying natural rock. This shaft from the top of the dam to the ceiling of the outlet tunnel within the transition area will be lined with a 42-inch diameter corrugated metal pipe. Concrete will be placed to fill the void between the pipe and the drilled shaft.

These aspects of the repairs are common in new hydraulic designs that attempt to eliminate cavitation-caused damages. They have worked successfully in other model studies and prototypes. However, it may be difficult to determine the precise slope of the floor ramp. Some adjustment after construction may be necessary, depending on studies of the effects of varying flow rates through the transition area.

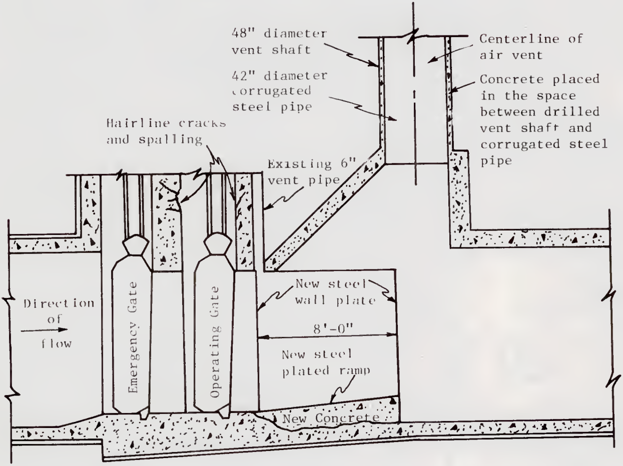
Repair work will start on the walls of the emergency and operating gate towers which necessitates drawdown of the reservoir to dead storage level. A temporary cofferdam will then be built upstream of the inlet structure. It will be maintained while workers erect a support system necessary to keep themselves and equipment above the tunnel floor and at a suitable height to work on the deteriorated concrete. While these repairs are taking place, the cofferdam will be removed, and the inflow to the reservoir will be released through the outlet tunnel beneath the support system of the workers.

After repairs to the tower walls have been completed, another cofferdam will be built blocking flows to the inlet structure. At that time, the emergency gate will be lowered and sealed, and a valve and pipeline will be bolted to the emergency gate hole which was used during 1974 repairs. This pipeline will maintain flow in the West Fork Bitterroot River for the duration of the repairs. Following the installation of the valve, the cofferdam will be breached.


6'-0"(±)
1'-0"
New Concrete
Projected outline of 42" diameter air vent
Direction of Flow
Steel plated parallel sidewalls
New Concrete
18'-2"

TOP VIEW

Scale 0 3 Feet



SIDE VIEW

Scale 0 3 Feet

**FIGURE 1 Remodeled Transition Area - Painted Rocks**

Flow in the West Fork for the remainder of the repair period will be limited to the capacity of the pipeline (15 to 35 cfs depending on the level of the reservoir) and will be interrupted only while:

1) the workers install the remaining sections of the pipeline through the length of the outlet tunnel (estimated at between three and five days with one eight-hour work shift per day),
2) the steel plates in the transition area are aligned, anchored, and braced (estimated at one eight-hour work shift), and
3) the workers remove the pipeline and valve from the outlet tunnel at the end of the repair period (estimated at between three and five days with one eight-hour work shift per day).

## Duration and Timing of Proposed Repairs

Repair work as discussed in the previous section will consist of concrete and grout placement, drilling and lining of the air shaft, and erection and welding of steel plates. This work will take several months to complete, and because of access problems to the outlet tunnel, it must be finished by spring runoff. The construction contractor will be informed of the runoff patterns into the reservoir and will work to complete the job on time.

A revised flow chart (Figure 2) indicates the approximate time schedule for the repairs.

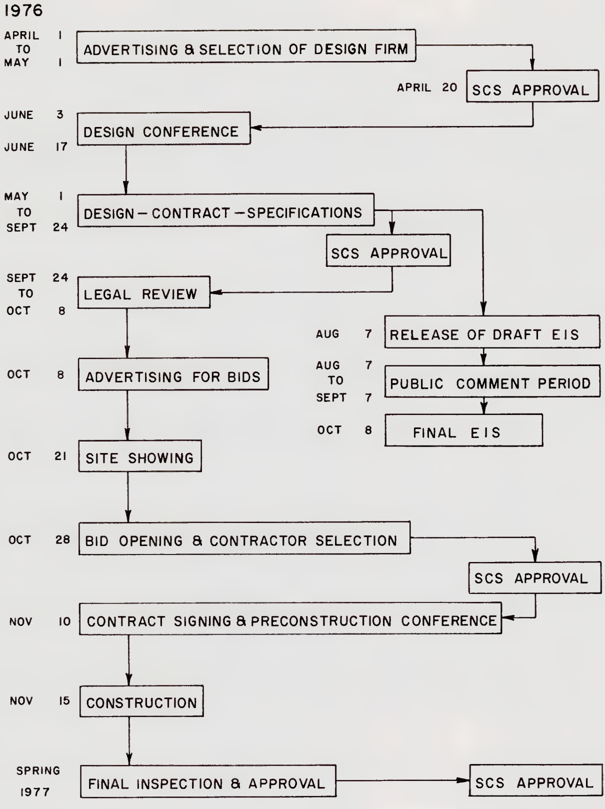


Figure 2 SCHEDULE FOR PAINTED ROCKS REPAIRS

## ADDITIONAL STUDY SUGGESTED BY PUBLIC COMMENT

As a result of written and verbal comments received subsequent to the release of the Draft EIS, Alternative 2 (Draft EIS, page 24) was reviewed, and three additional studies were made. The advantages and disadvantages of each are listed below followed by their estimated cost.

Alternative 2. Pump the Department of Fish and Game's recommended flow rate (100 cfs) over the spillway crest.

### Advantages

1. A continuous minimum downstream flow would be provided.
2. Further deterioration of the outlet tunnel would be prevented.
3. Drawing the reservoir down before the repairs begin would allow the repair of the wall between the emergency and operating gate towers.
4. Without the pipeline and its accompanying support system in the outlet tunnel, working areas would be unobstructed, resulting in a slightly shorter repair time.

### Disadvantages

1. The costs of acquiring and operating the pumping systems is estimated from $480,000 to $800,000 (Table 1). This amount is dependent upon the type of system selected and the length of time it will be in service.
2. Because the reservoir would be drained at the start of the repairs, an initial lift of approximately 100 feet would be necessary, and over 1,000 feet of pipeline would be required to move water over the spillway crest.
3. It is uncertain whether the 100 cfs would be available since average inflow to the reservoir is historically below 100 cfs during the winter months (Table 2).

### TABLE 1. COST ESTIMATE FOR PUMPING 100 CFS OVER THE SPILLWAY CREST FROM THE DEAD STORAGE LEVEL

VERTICAL LIFT PUMPS: (Information obtained from Peerless Pump, Spokane, Washington.)

Total Horsepower (hp) required for recommended flow = 1400 hp.

(With 200 hp diesel engines, a total of seven pumping units capable of discharging 15 cfs at 100 feet of vertical lift are needed.)

| | | |
|---|---|---|
| Estimated cost of pumps, gear drives, diesels, pipeline, and freight. | | $200,000 |
| Estimated operating costs for fuel, oil, labor, filters, and maintenance. | $10,000/month/pump<br>70,000/month | |
| TOTAL ESTIMATED COST: | 4 months = | 480,000 |
| | 5 months = | 550,000 |
| DELIVERY: | 12 to 16 weeks | |

---

CRISAFULLI - HIGH LIFT PUMPS: (Information obtained from Crisafulli Pump Company, Glendive, Montana.)

(A two-stage lift with a total of ten 16-inch pumps each powered by a 100 hp diesel engine would be required to pump 100 cfs over the spillway crest from dead storage level.)

| | | |
|---|---|---|
| Estimated cost for leasing units (pumps, diesels, pipeline, including operating costs) based on Tongue River pumping costs (1975). | $ 16,000/month/pump<br>160,000/month | |
| TOTAL ESTIMATED COST: | 4 months = | 640,000 |
| | 5 months = | 800,000 |

TABLE 2. AVERAGE INFLOW AND OUTFLOW AT PAINTED ROCKS LAKE

| Month | Inflow | Outflow at USGS gaging station below dam | |
|---|---|---|---|
| January | 73 cfs | 96 cfs | |
| February | 75 | 91 | |
| March | 96 | 104 | |
| April | 363 | 239 | (water is stored during these months) |
| May | 1084 | 939 | |
| June | 1022 | 1009 | |
| July | 260 | 266 | |
| August | 110 | 138 | |
| September | 87 | 147 | |
| October | 81 | 184 | |
| November | 97 | 138 | |
| December | 77 | 100 | |

Additional Study 1. Breaching the dam (removal of the entire earth-filled dam).

Advantages

1. A river environment would replace the reservoir.
2. Flows needed for aquatic life could be maintained until the breach is completed.
3. Severe fluctuations in flow below the dam to the Nez Perce Fork due to gate closures would not occur.

Disadvantages

1. The stabilizing source of flow would be eliminated, thus creating a situation where the flow in the West Fork Bitterroot River may be reduced either due to excessive dewatering by irrigators or severe drought or ice formation.
2. An intense but short-term siltation problem in the West Fork would probably occur while the dam is breached, despite control of sediment in stilling basins.
3. The cost of breaching the dam, reclaiming the reservoir land, and removing structures is estimated to be about $1,800,000 (Table 3). This amount, unlikely to be obtained from the state legislature*, would have to come from the federal government or another source.
4. There would be a loss of recreational use of the reservoir.
5. State income from the sale of water would be reduced.
6. The fishery in the West Fork may be reduced.
7. Time needed for environmental studies, subsequent financing, and breaching would require that the proposed repairs commence as scheduled. Therefore, the costs and benefits of these repairs would be lost if the dam were breached.

Additional Study 2. Construct an additional outlet in the dam.

Advantages

1. This would be a long-term solution which could be used to supply water downstream whenever future repairs are needed.

---

*Russ Bergren, Ravalli County Senator, Montana State Legislature, comment at the public meeting, September 7, 1976. See page 54.

TABLE 3. COST ESTIMATE FOR BREACHING PAINTED ROCKS DAM

| | | |
|---|---|---|
| BREACH: | | |
| Volume of earth fill in Painted Rocks Dam | 1,000,000 cubic yards | |
| Excavation cost at $1/cubic yard | | $1,000,000 |
| RECLAIM: | | |
| Surface acres of reservoir when full | 652 acres | |
| Reclamation costs (U.S. Forest Service estimates) at $160 per acre | | 104,320 |
| Reshaping river and tributary stream channels throughout the reservoir. Removal of deposited sediment. | | 100,000 |
| REMOVE STRUCTURES: | | |
| Gatehouse<br>Bridge<br>Spillway<br>Stilling basin<br>Tunnel<br>Tower<br>Inlet Structure | | |
| | Lump Sum Estimate | 500,000 |
| FEASIBILITY STUDY: | | 50,000 |
| ENVIRONMENTAL IMPACT STATEMENT: | | 20,000 |
| TOTAL ESTIMATED COST: | | $1,774,320 |

Disadvantages

1. Constructing the additional outlet is estimated at $1,345,500 (Table 4).
2. Time needed for the engineering design work, subsequent financing, and construction of the additional outlet would require that the proposed repairs begin as scheduled. The benefit of this additional outlet, therefore, would not be available for the proposed repairs.
3. In order to undertake this action, the reservoir would again have to be drained completely, thus eliminating the recreational opportunities at the reservoir while the outlet is being constructed.
4. Extremely difficult working conditions could be encountered if the outlet were constructed through the fill material because this material would be saturated.

Additional Study 3. Construction of a gate at the intake structure of the existing tunnel would block all flow downstream of the inlet structure.

Advantages

1. Future inspections and repair work to all areas below the new gate could be made without draining the reservoir.
2. Recreational use and aquatic habitat in the reservoir would seldom be lost as the need for draining the reservoir would be minimized.

Disadvantages

1. The cost of constructing this upstream gate is estimated to be $460,000 (Table 5).
2. The draining of the reservoir may still be necessary in an emergency situation.
3. Time needed for engineering design work, subsequent financing, and construction of the upstream gate would require that the proposed repairs begin as scheduled. The benefit of this upstream gate, therefore, would not be available for the proposed repairs.
4. This gate would still not provide downstream water either during an inspection or repairs to the existing tunnel.

TABLE 4. COST ESTIMATE OF CONSTRUCTION OF AN ADDITIONAL OUTLET TUNNEL WITH ALL PERTINENT STRUCTURES, CAPABLE OF DISCHARGING A MINIMUM OF 100 CFS. (ESTIMATE WAS PREPARED BY HARZA ENGINEERING COMPANY.)

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LOCATION: The intake structure would be in the east abutment of the dam at elevation 4420. A tunnel would be excavated through rock and would emerge above the stilling basin sidewall. This tunnel would control only the top 30 feet of storage in the reservoir.

PERTINENT STRUCTURES:

Gate
Intake structure
Tunnel
Hollow jet valve to regulate flows

CAPACITY: Maximum discharge - 700 cfs with reservoir full.

Minimum discharge - 100 cfs at intake elevation.

TOTAL ESTIMATED COST: (Including contingencies and engineering costs) $1,345,500

TABLE 5. COST ESTIMATE FOR CONSTRUCTION OF A GATE AT THE INTAKE STRUCTURE OF THE EXISTING TUNNEL. (ESTIMATE WAS PREPARED BY HARZA ENGINEERING COMPANY.)

---

SCOPE: This construction would enable the existing tunnel to be completely dewatered for inspection or repairs without requiring the lowering of the reservoir.

GATE SIZE: 12 feet by 15 feet.

LOCATION: At existing intake structure which will be modified to accept the gate.

CONSTRUCTION: A cofferdam would be built to isolate the work area at the existing intake structure, while diverting flows to an opening that would be broken in the tunnel just downstream of the intake structure.

TOTAL ESTIMATED COST: (Including contingencies and engineering costs) $460,000.

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## Summary

Table 6 is a summary of all the investigated alternatives and additional studies in the Draft and Final EIS.

TABLE 6. SUMMARY OF ALTERNATIVES, ADDITIONAL STUDIES, AND CORRESPONDING COST ESTIMATES

| | Alternative | Estimated direct expense |
|---|---|---|
| Presented in Draft EIS | 1. Pipeline through outlet tunnel | $ 20,000 - 50,000 |
| | 2. Pumping from a drained reservoir | 480,000 - 800,000 |
| | 3. Pumping from a refilled reservoir, fall 1977 | 125,000 - 250,000 |
| | 4. Inflow over the spillway, fall 1977 | 50,000 - 100,000 |
| | 5. No water provided | 0 |
| | 6. No repairs; do nothing | 0 |
| | **Additional Study** | |
| | 1. Breaching the dam | $1,800,000 |
| | 2. Construction of an additional outlet tunnel | 1,345,500 |
| | 3. Construction of a gate at the inlet structure | 460,000 |

It should be emphasized that the proposed repairs are designed to restore the safe use of the outlet tunnel. These repairs were carefully planned to remedy the cavitation problem in the existing tunnel and minimize, to the best of present day standards, future maintenance and repair work.

The construction of an additional outlet tunnel and gates at the upstream inlet structure are not essential to the safety of the soon-to-be repaired dam. They are, however, important structures in that they provide safeguards for the aquatic environments both in the reservoir and river. With these structures, future inspections and repair work could be more easily accomplished. At the same time, the need for frequently draining the reservoir would be eliminated, and flows could be continuously maintained in the West Fork by one tunnel or the other. However, with these additional facilities would also come the future need for maintenance and repair work on these structures.

# IMPACTS

## Economic Impact

The primary benefits of the proposed repairs are the damages prevented that would occur if the dam failed. The primary costs are the financial costs of the repairs and fish restocking and the recreation losses due to the decline in fish populations, lowered water levels in the lake, reduced water quality, and loss of aesthetic appeal. No estimate of the benefits is available; however, the loss of life and property that would occur in the event of a dam failure is recognized to greatly exceed the estimated repair costs. Detailed repair estimates will not be available before construction bids are opened.

Recreation losses will occur due to the reduced value of reservoir fishing, river fishing, reservoir boating, nature photography, and pleasure driving in the area. Also three campgrounds will be affected during the repairs. These losses occur in the fall and winter when demand for these activities is low, and nearby alternative sites are underutilized. The value of the recreational losses is the additional costs and inconvenience incurred when users switch to alternative sites for their activities. Lake Como is nearby and will be able to absorb some of the transferred activity. The ability of fish populations to move from the disturbed habitat means that the decline in fishing opportunities in the immediate area of Painted Rocks may be partially compensated for by increased opportunities in the areas to which the fish move. The availability of alternative sites for activities displaced from the Painted Rocks area will reduce actual losses. Another cost of the project will be sedimentation occurring in downstream irrigation ditches. This results from the increased turbidity discussed earlier. The reservoir now holds back the sediment that would have traveled down the river if the dam were not there.

The proposed action will have a temporary impact on the local economy. This impact will generally be favorable, providing employment during the fall and winter when seasonal unemployment is generally high. The actual number of jobs provided will depend on the requirements of the contractor awarded the repair job. The 1974 repair effort employed four persons for about one month. Four to ten workers may be employed for different phases of the proposed repairs. General construction salaries in Ravalli County during June 1976, averaged $308 per week. The local/non-local workers ratio will be determined by the contractor. The current repairs are expected to take from three to five months because of redesign considerations and to be generally more extensive than repairs required in 1974.

Local service establishments can be expected to benefit slightly by providing services to the additional salaried workers employed during the repair period. Some motel or short-term home rental accommodations may be needed to house non-local workers. Securing accommodations is not generally a problem and will benefit local establishments during the off-season. Also, some materials (food, sand, gravel, gas, welding supplies, etc.) will probably be purchased locally. Existing local services will adequately accommodate the needs of workers involved in the repair action.

Some minor detrimental effects may occur to local service establishments if recreational (whitefish fishing, ice fishing, ski touring, snowmobiling, hunting, etc.)use of the West Fork is lower than normal, due to consequences of the repair action. Except for fishing in the reservoir and the river immediately downstream from the dam to the Nez Perce Fork, recreational activities benefiting local establishments should not be affected.

## Fisheries Impact

Impacts resulting from the drawdown of Painted Rocks Lake are expected to be the same as reported in the Draft EIS, pages 32-36. The negative effects on aquatic life could result from displacement, stranding and entrapment, increased turbidity, altered habitat productivity, and ice formation.

Reduced flow in the West Fork below the dam will occur during the repairs period. With the selection of Alternative 1, some flow via pipeline will be provided to the river (15 to 35 cfs). This flow is much less than the 100 cfs recommended by the Montana Department of Fish and Game. Therefore, impacts to the aquatic resources of the West Fork will occur during the proposed repairs.

Exact estimates of fish lost cannot be made since there is no data from the 1974 repairs as to the number of fish impacted. A request has been made to the Department of Fish and Game to collect data before, during, and after the proposed repairs, so that estimates of aquatic damage can be based on fact, not rhetoric.

# AGENCIES AND INDIVIDUALS FROM WHOM COMMENTS HAVE BEEN RECEIVED AND THE DEPARTMENTAL RESPONSE

August 11th,1976

RECEIVED
AUG 12 19
& CONSERVATION

Mr. Wayne Wetzel
Environmental Coordinator
Montana Dept. of Natural Resources
Helena, Mt. 59601

Dear Mr. Wetzel,

Thank you for the copy of the EIS on the proposed repairs to the Painted Rocks Dam on the West Fork of the Bitter Root River.

I have been an interested citizen in this problem since 1974 when the problem of what to do about increasing damage in the dam become a public controversy.

I realize that the problem is not a simple one since the construction plan of the dam has been mainly the difficulty and now must be dealt with .

Naturally, I cannot speak from an engineering standpoint nor from that of an economist but certain things seem obvious. The dam needs repairs and it needs them now. Any further delay could bring real disaster downstream not only to the fishery but to life and property. Piecemeal attempts in the past to repair one thing after another have not proven adequate. Costs of these abortive attempts will be more and more in the future , so the thing to do seems to decide what is the best way,not the cheapest way, to repair the dam and protect the fishery.

A

I note that Table 1 sets about 100 cfs as the minimum discharge to maintain an aquatic picture which should preserve the fishery. You are probably aware that there are changes in the main river now which we attribute to over-downdraw by agricultural use late in the summer and early fall. Cutting out the flow of the West Fork could have really disastrous impacts on the main river. This , I feel, should be avoided at all costs.

B

I remember there was a real hassle about the costs of setting up an adequate pumping system back in 1974. Had someone been willing at that time to insist that adequate time be given for adequate repairs even though the cost seemed high then,I feel that the desperation point would not be facing us with the dam today. Therefore, I don't think that it is in the best interest of the public to once again do a peicemeal job.

I do not know for sure, but it looks to me as if having that emergency pipe running through the outlet tunnel while trying to make repairs was a real obstacle in the way of doing the job right.

So, In summary, I recommend that an adequate pumping system be rigged- 100 cfs minimum discharge- to allow adequate time to fully repair the

Painted Rocks Dam repairs ......cont

dam and maintain a viable fishery in the West Fork even though the initial costs seem high. Let us not be penny-wise and pound foolish!

cc: Morgan
F&G

Sincerely,
Doris Milner
Doris Milner
Rt 1, Box 1410
Hamilton, Mt. 59840

# RESPONSE

## DORIS MILNER

A. Reduction of flow in the West Fork will occur after agricultural withdrawals have been completed. Repairs are not scheduled to begin until mid-November after our current drawdown of the reservoir. This draining of the reservoir will supplement flows during the critical late summer agricultural withdrawal period.

B. A pumping system capable of discharging 100 cfs from dead storage level of the reservoir over the spillway crest has been discussed in Alternative 2, page 24 of the Draft EIS and again on page 8 of this Final EIS.

A system of this size is necessary only to maintain the aquatic environment in the river below the dam and has little to do with the time needed to fully repair the dam. Even with no flow into the river below dam during the repair period, it is likely to take four to five months to refill the reservoir. Generally, once spring runoff begins the reservoir can be completely refilled in less than two weeks.

RECEIVED
AUG 23 1976
MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

TO WHOM IT MAY CONCERN: 8/20/76

RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT - PROPOSED REPAIRS TO PAINTED ROCKS DAM.

ABOVE REFERENCED DOCUMENT INVITES RESPONSE BY WRITTEN COMMENT TO BE SUBMITTED BY SEPTEMBER 7, 1976.

PRESS RELEASE IN AUGUST 19, 1976 ISSUE OF RAVALLI REPUBLIC INDICATES BID ADVERTISING SCHEDULE FOR MID- OR LATE-AUGUST WITH BID OPENING AND CONTRACTOR SELECTION, CONTRACT SIGNING AND PRECONSTRUCTION CONFERENCE SCHEDULED FOR APPROXIMATELY THE FIRST WEEK IN OCTOBER.

TRUSTING THAT IT IS NOT TOO LATE, MAY WE OFFER THE FOLLOWING COMMENTS?

AFTER CAREFUL CONSIDERATION OF THE STATEMENT, SEVERAL POINTS BECOME FRIGHTENINGLY CLEAR:

A 1. PAGE 47, PARAGRAPH 3, ITEM B PINPOINTS THE ORIGIN OF THE PROBLEM THAT NOW EXISTS. THOSE OF US WHO HAVE LIVED WITH THE DAM SINCE ITS CONSTRUCTION ARE WELL AWARE THAT NO PROBLEMS AROSE FOR MANY YEARS. ONLY WHEN SOMEONE ILL-ADVISEDLY (AND UNSUCCESSFULLY) DECIDED TO USE THE DAM AS A FLOOD CONTROL TOOL DID TROUBLE ARISE.

B 2. ANY OF THE ALTERNATIVES OFFERED BY THIS STATEMENT WITH THE RESULTANT LOWERED STREAM FLOW ARE INACCEPTABLE FROM THE STANDPOINT OF PRESERVATION OF A LIVING RIVER. DEPLETION OF AQUATIC FOOD WHICH ATTRACTS FISH RESULTS FROM DRYING OUT OF LARGE AREAS OF STREAM BED. EVEN IF THE FISH MANAGE TO SURVIVE IN SEMI-STAGNANT POOLS (AND IF THEY DON'T FREEZE SOLID DURING THE WINTER), NOTHING SURVIVES FOR LONG WHEN DEPRIVED OF A FOOD SOURCE. DEPLETION OF THE FISH POPULATION WILL IN TURN DEPRIVE SEVERAL ANIMAL AND BIRD SPECIES OF A FOOD SOURCE, AS WILL DEPLETION OF THE INSECT LIFE UPON WHICH NUMEROUS BIRDS DEPEND.

C EVEN AFTER ANY OF THESE REPAIRS HAS BEEN EFFECTED, IT WOULD APPEAR THAT IT WILL BE NECESSARY TO COMPLETELY DRAIN THE IMPOUNDED WATER AT LEAST ONCE EVERY FIVE YEARS FOR THE PURPOSE OF INSPECTING THE DAM. THE EFFECT OF ONLY ONE DRAW-DOWN ON DOWNSTREAM FISH LIFE WAS EXTREMELY ADVERSE - THE SEVERAL DRAW-DOWNS IN THE PAST TWO-THREE YEARS HAS HAD A PITIFULLY OBVIOUS EFFECT ON THE QUALITY OF FISHING ON THE ENTIRE WEST FORK RIVER, PLANTING OF HATCHERY FISH NOTWITHSTANDING. THUS IT WOULD SEEM THAT JUST WHEN THE PLANT AND FISH LIFE ARE BEGINNING TO RETURN TO BALANCE OVER A 2-3 YEAR PERIOD, YOU THEN PROPOSE TO UPSET THAT BALANCE AGAIN BY DRAINING THE LAKE.

D 3. WITH ONLY TWO SMALL WATER-USE CONTRACTS CURRENTLY IN EFFECT, BY NO STRETCH OF THE IMAGINATION CAN THE COST OF REPAIR BE JUSTIFIED BY OFFERING THE DAM AS A WATER CONSERVATION TOOL TO FURNISH STREAM FLOW DURING THE DRY SUMMER MONTHS. THE FIRST PARAGRAPH ON PAGE 19 NEGATES THIS THEORY.

ADDITIONALLY, RECREATIONAL USE OF THE LAKE ITSELF BENEFITS, AT BEST, ONLY A HANDFUL OF PEOPLE COMPARED WITH THE NUMBERS WHO FISH AND PICNIC ON THE LENGTH OF THE WEST FORK RIVER EVERY DAY.

E WHY HAS NO ONE OFFERED WHAT APPEARS TO BE THE MOST SIMPLE SOLUTION? IT WOULD SEEM MUCH CHEAPER AND MORE ECOLOGICALLY SANE TO REMOVE THE DAM ENTIRELY AND ALLOW THE RIVER TO RESUME ITS NATURAL FLOW THROUGH THE VALLEY. ITS HAZARD FACTOR WOULD BE REMOVED, NO MORE COSTLY REPAIRS WOULD BE REQUIRED IN FUTURE YEARS, AND VERY FEW PEOPLE WOULD MISS IT!

F P.S. IS THERE GOING TO BE ANY SORT OF HEARING, PRIOR TO AWARDING OF A BID, SO THAT THE PUBLIC WILL HAVE A CHANCE TO VOICE COMMENTS ON THE PROPOSED SOLUTION TO THIS PROBLEM?

Ruth M. Rasmussen
Lyle Rasmussen

MR. & MRS. LYLE RASMUSSEN
506 S. 8TH STREET
HAMILTON, MT 59840
(WEST FORK PROPERTY OWNERS —
246 ACRES AT NEZ PERCE ROAD
FORK)

COPIES TO: MR. GARY WICKS, DIRECTOR
MT. DEPT. OF NATURAL RESOURCES AND CONSERVATION
32 SOUTH EWING
NATURAL RESOURCES BUILDING
HELENA, MT 59601

MR. ORRIN FERRIS - ADDRESS AS ABOVE
MR. WAYNE A. WETZEL - ADDRESS AS ABOVE

## RESPONSE

## MR. AND MRS. LYLE RASMUSSEN

A. During the previous 38 years of operation, repairs have been necessary to the outlet tunnel at Painted Rocks. Several times prior to the 1974 outlet repairs, concrete patching in the transition area of the outlet tunnel has taken place.

Future operations of the outlet tunnel will be subject to certain design limitations of the project. For example, when runoff occurs in the spring, the gates will be closed, and all water will be forced to flow over the spillway crest. Summer releases in excess of the natural inflow will be made according to water purchase contracts. During the winter months, the reservoir level will be down approximately seven to ten feet primarily as a result of summer releases and the need to keep the water levels below the spillway crest to prevent possible ice jams.

B. Two basic alternatives were considered for providing downstream flow during the repairs: pumping a flow of 100 cfs over the spillway crest and installing a pipeline within the outlet tunnel which could supply 15 to 35 cfs. The pumping alternative previously discussed in both the Draft and this Final EIS has been eliminated because of the high costs of providing this recommended flow. Installation of the pipeline has been selected as the only viable alternative.

C. An inspection of the inlet tunnel has been recommended every five years. The purpose of this is to continue to check the safety of the pertinent structures that during the previous five years are underwater. These inspections would require that the reservoir be drained. The options to this operational plan would be:

1. Construct a gate at the upstream entrance of the existing tunnel (discussed on page 13).

2. Inspect these normally underwater structures less often, for example every ten or fifteen years. It should be noted that the risk of undetected damages endangering downstream residents increases with time between inspections.

D. The first paragraph on page 19, Draft EIS, refers to the mainstem of the Bitterroot River and not the West Fork. In comparing inflow to outflow records on the West Fork, it becomes obvious that generally the reservoir does provide increased flow during periods of low inflow (Table 2, page 10).

E. Breaching the dam is costly (page 12), and there is opposition to it (page 53).

F. A summary of the public meeting is on pages 47-54.

The Montana Wilderness Association
Box 548
Bozeman, Montana 59715

4000 4th Avenue, North
Great Falls, Montana
59401

Wayne A. Wetzel
Environmental Coordinator
32 South Ewing
Helena, Montana
59601

August 24, 1976

Dear Mr. Wetzel;

I appreciate your supplying me with a copy of the draft environmental statement covering the proposed repairs to the Painted Rocks Dam. Comments on that proposal on behalf of the Montana Wilderness Association have previously been submitted by Doris Milner, chairman of our Bitterroot Committee and I have nothing to add to her statement. Thank you for providing me with an opportunity to review that document.

Sincerely,

Thomas E. Horobik

Thomas E. Horobik
president

RECEIVED
AUG 25 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

March 3, 1849

United States Department of the Interior

BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
FEDERAL BUILDING & U.S. COURTHOUSE
BOX 043–550 WEST FORT STREET
BOISE, IDAHO 83724

IN REPLY REFER TO: 160

120.1

AUG 24 1976

Mr. Wayne A. Wetzel
Environmental Coordinator
Montana Department of Natural Resources and
Conservation
Natural Resources Building
32 South Ewing
Helena, Montana 59601

Dear Mr. Wetzel:

The Draft Environmental Statement for the proposed repairs to the Painted Rocks Dam on the West Fork Bitterroot River, which you sent us by letter of August 7, 1976, has been reviewed by appropriate members of our staff and we have no objections to the content of the document. Please let us know if we can be of further assistance in the review process.

Sincerely yours,

John R. Woodworth
Regional Environmental Officer

RECEIVED

AUG 26 1976

MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

AUG 27 1978

MONT. DEPT OF NATURAL
RESOURCES & CONSERVATION

Darby, Montana
Aug 26, 1978

Montana Dept. Natural
Resources/conservation,
Mr. Wayne A. Wetzel,
Environmental Coordinator,
Sir:

As a recipient of the Water Resources Division Impact Statement on the proposed repairs to Painted Rocks Dam, and upon studying the information contained, I felt compelled to reply.

I am a resident on the West Fork of the Bitterroot River, six miles below the dam. Have a home and some acreage there.

A

To be brief, and come immediately to the point, I am not satisfied with any of the alternatives (for repairs) discussed, but see it this way. EITHER spend WHATEVER AMOUNT of money to completely repair the dam that is necessary, OR remove it. A third "patching" as your alternatives seem to propose, and I have heard of a mere (mere today) 400 to 500 thousand dollars allotted for these repairs, is simply not the repair I believe necessary.

B

There is a great deal to be said for the REMOVAL of the entire dam, and this would be my personal first choice. Why not an IMPACT STUDY on this aspect of solving the continuing problem with the structure. The history of Painted Rocks Dam, its use during the years since construction, and the current inclination of the numerous local people I have discussed this subject with, all seem to point to the desirability of actual removal, rather than apparent minimal repair. I'm sure you are aware that there was no real need for the dam in the first place, that it was merely a WPA "make-work" project in connection with the depression of the Thirties, and that in the years since construction its only uses have been to provide water for the fishery below the dam, and also as a minimal recreation facility. That's it, and the local citizenry are perfectly aware of this.

I have given some thought to the consequences of dam removal, and have come to realize that this would probably cause the loss of the fishery for a much longer time than would repair, that the people who still have private property adjoining the lake itself would be adversly affected, as would those who are under lease, but, envisioning the eventual return of the river to its natural state, plus the removal of the threat of a defective dam, cause me to opt for removal. Also, as the dam serves no compelling purpose, or need, its removal would, I believe, cause but a minor ripple of opposition, especially if that work was done as expertly as possible, plus an effort to fairly adjudicate the loss of the lake to those directly involved. All this a one-time expenditure, possibly even less than the present monies assigned for repair. Certainly without the need for future money for periodic repairs, and/or periodic "inspections" that are so disruptive to the fishery (as in the recent past).

Sincerely,
Virgil L. Walker
Virgil L. Walker
Star Route,
Darby, Montana, 59829

## RESPONSE

## VIRGIL WALKER

A. The proposed repairs discussed in this report are using currently established design standards that have worked successfully in numerous other projects. These repairs are not considered "patching" but are designed to restore the safe use of the outlet tunnel.

This amount of money needed for these repairs is estimated to be within the $400,000 funding authorized by the Soil Conservation Service; however, this amount was not used as the criteria for establishing the quality of the design and repair work.

B. Breaching of the dam has been discussed on pages 11-12.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box 970, Bozeman, Montana 59715

September 1, 1976

Wayne A. Wetzel
Environmental Coordinator
Montana Department of Natural Resources
and Conservation
32 South Ewing
Helena, MT 59601

NATURAL
CONSERVATION

Dear Mr. Wetzel:

We have reviewed the draft environmental impact statement related to the proposed repairs to the Painted Rocks Dam and have the following comments for your consideration. In reviewing advantages and disadvantages of the various alternatives in Section IV of the draft statement, the following is clearly outlined:

1. Public health and safety is the overriding concern which necessitates immediate repair of the dam.

2. There will be disruption of aquatic environments for all alternatives except the do-nothing alternative.

3. The extent of disruption of aquatic environments cannot be precisely determined due to several unknown quantities.

**A** a. Table 2 presents fish population statistics for a 2,000-foot section of the West Fork Bitterroot River below Painted Rocks Lake, October 4 and 5, 1973.

Similar sampling of this stretch of river after other repairs of 1974 would have provided bench mark data on the effects of providing continual flows of 15 to 35 cfs as done during the 1974 repair period. Sampling following 1976 repairs is recommended for baseline data.

**B** b. In the event that all flows are shut off, the amount of downstream flows provided by springs, seeps, and tributary flow cannot be accurately predicted. It is recognized that displacement of fish would be anticipated in this event, and some entrapment losses could be expected.

**C** c. The requirement of pumping a minimum flow of 100 cfs below the dam could have more harmful aspects than beneficial aspects depending on inflow amounts that could be experienced during the construction period, which is unknown at this time. If reservoir levels are kept extremely low, the quality of water pumped will be adversely affected by turbidity for long periods of time.

**D**

d. Natural recovery of aquatic environments will occur when normal streamflows are restored. This report does not address itself to the length of time required for complete recovery by natural processes.

It appears that the shorter the time period required for repairs, the more positive the benefits to both public health and safety and to shortening time required for complete restoration of aquatic environments--both in the reservoir and downstream.

We appreciate the opportunity to comment on this statement.

Sincerely,

Van K Haderlie
State Conservationist

## RESPONSE

## SOIL CONSERVATION SERVICE

A. Fish population statistics after the 1974 outlet repairs at Painted Rocks were not gathered and therefore the effects of providing continual flows through the pipeline during the repairs was not determined. A request has recently been made to the Montana Department of Fish and Game to collect these statistics prior to, during, and after the proposed repairs.

B. Downstream flows will be provided by use of a pipeline through the outlet tunnel. There will be some interruption of flows as previously discussed on page 6. All attempts will be made to minimize the number and duration of interruptions.

C. Pumping 100 cfs over the spillway crest throughout the entire repair period could be impossible because average inflows to the reservoir during this period are historically below 100 cfs (Table 2, page 10). Although this year has been above average both in rainfall and streamflow, water quality problems would be encountered by pumping this discharge from a drawdown reservoir.

D. Exact recovery periods are still questionable. Without baseline data, effects of previously reduced flows are difficult to estimate.

It is not necessarily true, however, that "the shorter the time period required for repairs, the more positive the benefits to both public health and safety...." With the proposed repairs scheduled for completion by spring runoff, time is allowed for adequate preparation and finishing work as well as concrete curing time. To shorten this time period may not benefit the quality of the work being performed and thereby would be a detriment to public health and safety. The selected contractor will work according to the instructions of the resident engineer.

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME
3309 Brooks Street
Missoula, Montana 59801
September 3, 1976

RECEIVED
SEP [illegible] 1976
MONT DEPT OF NATURAL
RESOURCES & CONSERVATION

Mr. Wayne Wetzel
Environmental Coordinator
Montana Dept. of Natural Resources & Conservation
Helena, Montana 59601

Dear Mr. Wetzel:

We have taken this opportunity to make comments to the draft statement on Painted Rocks Dam Repair, our comments follow.

Instead of following with the usual page 1 to the end approach, I am going to skip to page 40 and avoid the many minor issues which could be commented upon and stress the major issues of Painted Rocks Dam and its repair.

Part VII Irreversible and Irretrievable Commitment of Resources, Page 40:

> "Fish and aquatic insect mortalities resulting from the proposed action constitute an irretrievable loss. However, when normal streamflows are restored, stocking and natural regeneration will result in recovery of these populations."

A Painted Rocks Dam has a history of severely dewatering the West Fork of the Bitterroot River and will continue to do so as long as frequent inspections and piece-meal type repairs are needed. We are confident this repair is not the last repair that will be needed on Painted Rocks Dam, in spite of the feeling one gets after reading the draft. Normal stream flows cannot be restored with the alternatives proposed. Our information indicates a one to five year dam inspection schedule will be necessary at which times dewatering will occur again and again. This operational plan will not restore "normal flows."

B No mention is made of an operational plan on the reservoir or the dam over the long term. This failing of the draft statement makes statements concerning long term vs the short term and irreversible and irretrievable pure rhetoric because the total operation of the dam is going to effect the long-term not just this year's repair.

C Provisions in the construction and engineering should have been made for providing flows during inspections as well as during the repair. The possibility of constructing dual gates comes to mind so that while one gate is being inspected or repaired the other can pass the necessary flows. The costs of this work can be spread out over all future repairs and inspections not just this year's work. The engineering section of the DNR can probably assemble something better for long-term protection of the natural resources than pipes over the crest of the dam or a pipe in the work area.

D

No estimate of costs are put on natural resources lost during this year's repairs. A little mathematics on existing stream fish populations is presented in Table 1.

Table 1. Projected gamefish losses resulting from dewatering for this year's repair and during future inspection in seven miles of the West Fork of the Bitterroot River.

| Species | Size (inches) | Number in 2000 ft. of stream | | Number for 7 miles of stream |
|---|---|---|---|---|
| Mountain whitefish | 2.1-16.3 | 3767 | x 19 | 71,573 |
| Rainbow trout | 3.5-12.0 | 327 | x 19 | 6,213 |
| Cutthroat trout | 2.3-11.5 | 71 | x 19 | 1,349 |
| Total game fish | | | | 79,135 |

E

The losses indicated in Table 1 are only static estimates, future losses can also be expected because naturally reproducing populations will not recover in one year. Furthermore, mountain whitefish cannot be replaced by hatchery fish. Furthermore, the costs of restocking trout in the reservoir and the West Fork should be born by the project not sportsmen's dollars.

Insect populations are resilient and probably will recover within one to two years providing sedimentation resulting from the repairs does not destroy the habitat.

Our opinion is that a thorough re-evaluation should be made of the Painted Rocks Dam situation. All alternatives should be presented with costs and benefits of each. Painted Rocks Dam and Reservoir should also have an operational plan designated for long term effects so benefits and costs can be evaluated effectively by all concerned individuals and agencies.

We had sincerely hoped that the DNR would have proposed long term solutions to the problems at Painted Rocks so that public safety and the natural resources in the area would jointly benefit.

We do not oppose the repair of Painted Rocks Dam because that is an engineering decision based upon conditions at the dam and a concern for public safety but are dismayed at the piece-meal planning that is continuing at Painted Rocks.

Sincerely,

JIM FORD
REGIONAL COORDINATOR

By Don Peters
Fisheries and Wildlife Biologist

JF/DP/pm
cc: Jim Posewitz

## RESPONSE

## MONTANA DEPARTMENT OF FISH AND GAME

A. The Draft EIS was not released to give its readers the false impression that the proposed outlet tunnel repairs will last forever. Certainly future repairs may be necessary to any aspect of the dam and cannot be predicted now. Future maintenance of the dam will be performed as needed.

B. Although a Painted Rocks operational plan is currently being worked on, this EIS is for the expressed purpose that the title relates: "Proposed Repairs to Painted Rocks Dam." The operational plan for Painted Rocks Dam will attempt to compromise between all water related uses but will not compromise on the continued safety of the structure.

C. The possible addition of an auxiliary outlet tunnel is discussed on pages 11 and 13 of this report.

The Engineering Bureau of this Department must work within certain monetary contraints that are established through a statewide budget. As discussed previously in this report, costs for constructing any one of these suggested alternatives are high. Since no comparative fishery data has been established for our current pipeline alternative of providing downstream flow, (and the furture maintenance needs of the project are unpredictable), a reasonable analysis over a long-range period would not be possible.

D. No reasonable estimates on natural resource losses can accurately be made because of the unknown effects of minimum flow which was maintained during previous repairs and which will again be provided.

Data presented in Table 2, page 17 of the Draft EIS are estimates based on population statistics obtained on a 0.4 mile section of the West Fork Bitterroot River on October 4 and 5, 1973. This study was conducted shortly after the reservoir was drained in anticipation of the 1974 repairs. These numbers may accurately describe the displacement of fish immediately after dewatering and before 1974 repairs. However, no baseline data was collected so it is not known what percentage of the fish were affected. Also, studies were not conducted to determine what conditions existed during repairs and how long it took for the habitat to return to pre-repair status.

E. The Department's responsibility does not extend to providing recreation at the site. Those who use the reservoir for recreation must recognize the need for occasional maintenance and inspections of the dam and the associated risks to their investments.

TROUT UNLIMITED
WEST SLOPE CHAPTER

August 31, 1976

Wayne Wetzel
Department of Natural Resources & Conservation
32 South Erving
Helena, Montana 59601

Dear Mr. Wetzel

The West Slope Chapter of Trout Unlimited would like to thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Proposed Repairs to Painted Rocks Dam. The main text of our comments will deal with the Proposed Alternative Actions at Painted Rocks Dam on pages 22-27 of the Draft E.I.S.

Alternative One is not a desirable plan because of the adverse effects on the aquatic life in the West Fork below the Dam. The 15 to 35 C.F.S. flow below the Dam would be far below the Department of Fish & Game recommendation of 100 C.F.S. Alternatives Three and Four are both undesirable because of the two year period of repairs. The hazards to both the dam and the fishery pointed out in the text are too great to allow this method of repairs. Alternative Five would have too great an adverse impact on the aquatic environment to be seriously considered. Alternative Six is also undesirable. The disaster at Teton Dam in Idaho is too great a reminder to allow the defects in Painted Rocks Dam to go unchecked.

A Alternative Two is the best of the Proposed Alternatives for Repairs. This method would have the least impact on the downstream aquatic life in the West Fork. The disadvantages listed under this alternative are those of cost. The benefits of maintaining the aquatic life far outweigh the costs involved. With this in mind, we urge you to use the equipment necessary to maintain 150 C.F.S. in the West Fork below the Dam. This greater flow would have several advantages. The chance for sucessful spawning by Brown Trout and other fall spawners would be greatly increased. The higher flow would also lessen the risks of a total freeze of the reduced flow. Of greatest importance is the need to keep the flows in the West Fork as near normal as possible to maintain the aquatic environment for the benefit of the area.

B One Alternative that is not considered in the Draft E.I.S. is complete removal of the Dam. This Alternative should be considered because of

B because of the minimal need for the Dam. The basic uses of the Dam are flood control, irrigation and recreation. As stated on page 5 of the Draft E.I.S., the Dam has minimal effect on downstream peak flow. The irrigation use is minimal and probably could be obtained from a free flowing stream. As stated on page 18, only a small amount of land between the Dam and the confluence with the East Fork is irrigated. As far as recreation, probably as much or more recreation days would be derived from a free flowing stream as are derived from the reservoir at present.

Repairs to Painted Rocks Dam were made in 1954, 1974, and are going to be made again in 1976. The increasing frequency of repairs to the Dam point to a very poor cost benefit ratio. For the safety of the Dam at present and to the inhabitants in the valley below, the repairs under Alternative Two should be made. But serious consideration should be given to the total removal of the Dam. The West Fork of the Bitterroot River is a Class 3 stream, that is, one of importance to a large district. With the tremendous growth in outdoor recreation and the degradation of similar streams across the country, the benefits of a free flowing West Fork in its entirety far outweigh the minimal benefits of Painted Rocks Dam. We urge you to seriously consider removal of the Dam in the near future.

Sincerely,

Kevin F. Glaes

Kevin F. Glaes
President
West Slope Chapter

KFG:dg

## RESPONSE

## TROUT UNLIMITED - KEVIN F. GLAES

A. Alternative 2 discussed in the Draft EIS may be the best alternative in terms of its large downstream flows; however, it is also beyond the financial resources of this Department. Estimates on page 9 indicate the high costs of pumping as well as the uncertainty of whether this amount would even be available (average inflow to the reservoir is historically below 100 cfs during the winter months, page 10.)

B. Breaching of the dam has been previously discussed on pages 11 and 12.

TROUT
UNLIMITED

SEPTEMBER 3, 1976

MONTANA DEPT OF NATURAL RESOURCES & CONSERVATION
32 South Ewing
Natural Resources Building
Helena, Montana 59601
ATTN: MR. WAYNE WETZEL, Environmental Coordinator

Dear Mr. Wetzel,

In response to the draft of the environmental impact statement with proposed repairs to Painted Rocks Dam issued in August of 1976, we have the following comment:

A We have reviewed the proposed alternatives and we strongly feel that a public hearing should be held to allow further inter action between your department and the public. In the event that a public hearing cannot be held we subscribe to alternative #2; ie, that alternative permitting the highest stream flow.

B An alternative proposal we feel, would be the elimination of Painted Rocks Dam, per se, and the restoration of the West Fork Stream bed to it's normal free flow. The advantage would be the elimination of repair costs now and in the future and with no detriment to the environment.

Sincerely,

Thornton O Beazell

Dr. John Moreland, President

Thornton O. Beazell, Sec/Treas

TROUT UNLIMITED
Bitterroot Chapter
P O Box 262
Hamilton, Montana 59840

TOB:vjk

## RESPONSE

## TROUT UNLIMITED - DR. JOHN MORELAND & THORNTON O. BEAZELL

A. A summary of the public meeting is on pages 47-54.

B. Breaching of the dam has been previously discussed on pages 11 and 12. However, the proposed repairs must be made because any final decision on this topic is likely to take years of debate. The tunnel cannot remain without repairs for that length of time.

RECEIVED
SEP 7 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Donald Baty and Melissa Patterson
PO Bx 664
Conner, MT 59827
8/14/76

Wayne A. Wetzel:

We are writing to comment on the draft EIS for the proposed repairs on painted rocks dam. We found the draft EIS extremely disappointing. The draft does not consider any alternatives, but is simply a rather thin justification for the course of action that you have decided to undertake.

A We feel that painted rocks dam should be breached, and the West Fork River be returned to a free flowing state. The dam plays little use for irrigation and flood control and is a threat to the safety of the people who live down river from it The only justification for the dam is its recreational value, but we feel a free flowing river is much more of a recreational asset than an artificial reservoir.

B Many residents of the West Fork feel as we do, and a petition has been circulated calling for a meeting to discuss the draft EIS. We urge that such a meeting be held before any work is undertaken. We also urge that the draft EIS be completely rewritten and that breaching of the dam be seriously considered as a viable alternative.

Sincerely yours,

Donald Baty

Melissa Patterson

## RESPONSE

## DONALD BATY & MELISSA PATTERSON

A. Breaching of the dam has been previously discussed on pages 11 and 12.

B. The public meeting was held on September 7, 1976 at Shook's Mountain Inn. A summary of the meeting is included later in this report.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Federal Building
Missoula, Montana 59807

SEP 3 1978
8430

Mr. Wayne A. Wetzel
Environmental Coordinator
32 South Ewing
Natural Resources Building
Helena, Montana 59601

Dear Mr. Wetzel:

We have reviewed the Draft Environmental Statement for repair on Painted Rocks Dam. Our major concern continues to be the impact of fisheries. This concern was expressed in numerous letters to the Department prior to the last repair project in 1973.

**A** The Montana Fish and Game Department conducted flow studies in 1975 that indicate 100 cubic feet per second flow is the minimum needed to maintain the fishery. The previous agreed upon flow of 29 cubic feet per second will not maintain the fishery at an acceptable level; this level is considered only as a survival flow and then only for a short period of time (up to 24 hours). The 4 to 5 months required for repairs is much greater than the survival period. During those short periods when it may be necessary to reduce waterflow, damage to fisheries should be minimized by adhering to the following guidelines:

> Make all changes in waterflow as gradual as possible. This will enable fish to reach pools without being stranded.
>
> Make every effort to reduce the number of shutdowns. Every hour of shutdown increases the damage to the aquatic life.
>
> Maintain as nearly a consistent flow as possible to prevent fish from spreading over the shallows and becoming stranded if flow is reduced.

**B** Basically we do not believe the downstream fisheries resource and the resultant recreation values have received adequate consideration or discussion in the statement. Since Whitefish are the main concern at this time of year (fall-winter), the alternatives should consider this species primarily. Mitigation for this species is much more difficult than for Trout since Whitefish hatcheries are not available in Montana.

Specific comments with page references are as follows:

Page 10 - "An attempt may be made to provide minimal downstream flows. . ." should be changed to read "downstream flow of 100 cubic feet per second will be maintained except during periods of reduced waterflow when a minimum flow of 29 cubic feet per second may be maintained for short periods of time (up to 24 hours)."

Page 15 - (Wildlife and Fisheries) "Osprey. . .may nest along the reservoir. . ." should read "Osprey do nest along the reservoir." We have inventory data to support this.

Page 27 - The disadvantage of Alternative #5 deserves greater emphasis. Tributary flow will not maintain a fishery. It should state that essentially the fisheries and other aquatic life would be lost. (References: Forest Service Fisheries Biologist Gordon Haugen and Montana Fish and Game Biologist Ron Marcoux)

Page 29 - (1a) "Impact on terrestrial life and habitats" should be moderate if we consider osprey, amphibians, reptiles, and other animals dependent on the stream.

Page 30 - (3a) Should be a major impact rather than moderate considering that recreation in the area is basically fisheries oriented.

Page 32 - (Paragraph 3) "Negative effects on aquatic life could result. . ." should be stated in a more positive way. "Negative effects on aquatic life will result. . ." would more clearly depict the true situation and permit the respondents to make a better evaluation of alternatives. (This comment also applies to five other places on pages 33 through 36.)

C We recommend an economic analysis be prepared as an integral part of this report. It should include the six alternatives listed plus the alternatives of breaching the dam, constructing a new dam, construction of a cofferdam, and building a new outlet tunnel. This should provide an opportunity for the public to evaluate the cost/benefits of the proposal.

Of these proposals, we consider Alternative #2 (type of action) most responsive to the needs of the fishery and recreationist.

D In order to prevent misunderstanding, it is timely to state that this project is a permitted activity authorized by a special use permit from the Forest Service.

I reiterate the position expressed by the Bitterroot Forest Supervisor in his letter of September 26, 1973, to Director Gary Wicks in which he advised your Department not to take any action which would greatly reduce the streamflow and cause heavy impacts to several resources. This precisely expresses our position.

I appreciate the opportunity to review the statement; and am sure that by working together, we can arrive at a mutually acceptable alternative.

Sincerely,

Lawrence M. Whitfield

for ROBERT H. TORHEIM
Regional Forester

## RESPONSE

## UNITED STATES FOREST SERVICE

A. Providing 100 cfs to the river below the dam has been previously discussed on pages 8, 9, and 10. Primarily because of the high costs and the probability that the requested flow will exceed the inflow to the reservoir, the recommended 100 cfs flow below the river will not be provided.

The pipeline used during the 1974 repairs will again be installed providing between 15 and 35 cfs. All attempts will be made to see that the recommended guidelines for minimizing damage are adhered to during the repair effort.

B. With conflicting data on the fisheries resource in the West Fork below the dam to the Nez Perce Fork, evaluation is difficult. Depending on the amount of downstream water provided during the repairs, there will be some stranding, entrapment, and displacement of fish. With the proposed pipeline through the outlet tunnel, flows in the range of 15 to 35 cfs can be expected as well as several complete shutdowns. This alternative however is expected to allow the river to recover much more rapidly than it would from being shut off totally for the duration of the repairs.*

Recreational losses are discussed in the economic impact section of this Final EIS (pages 17-18).

C. Costs estimates of various alternatives are listed on pages 9, 12, and 14-16. The expected economic impacts of these proposed repairs are also presented on pages 17 and 18. The construction of a new dam was not considered a viable alternative to the proposed repairs. The time for such an action would still require that the present facilities be repaired.

D. The special use permit granted by the USFS to the State Conservation Board gave the State of Montana permission to build Painted Rocks Dam. This permission was given with the knowledge that only one outlet tunnel would be constructed and that future repair and maintenance work would be needed on this structure.

The critical need for these repairs has been established; work will begin this fall as described in the proposed action.

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*Wes Woodgerd, Director, Department of Fish and Game, to Gary Wicks, Director Department of Natural Resources and Conservation, personal communication. September 14, 1976. (Appendix A)

## Summary of Verbal Comments Received at the Public Meeting

On September 7, 1976, at 6:20 p.m., approximately 90 people attended a public meeting at Shook's Mountain Inn near Darby, Montana, to discuss the proposed repairs to Painted Rocks Dam. Rick Bondy, Phil Porrini, Wayne Wetzel, Alex Bailey, and Janet DeHaven represented the Department of Natural Resources and Conservation and presided over the meeting. Mr. Bondy gave a short presentation on the proposed repair actions at Painted Rocks Dam as presented in the Draft EIS. The meeting was then opened for discussion. The following is a brief summary of the questions, comments, and answers that were expressed at this meeting. Detailed minutes of the meeting are available for public inspection at the Department's office in Helena (Engineering Burea, 32 South Ewing). All answers (A) were delivered by DNRC representatives unless otherwise stated.

Q: What are the costs of these repairs going to be?

A: Our latest estimate is about $300,000 counting construction, engineering, and inspection.

Q: What is the amount available from the Soil Conservation Service?

A: $400,000.

Q: To what condition will these repairs bring the dam? Is it a condition that is engineeringly sound or something that is going to have to be repaired again in the future as it has been in the past?

A: It is difficult to predict exactly what will happen. The repairs that we are proposing are known as a sudden transition. This is a new design concept that has been used successfully on Bureau of Reclamation projects. However, the geometry of Painted Rocks Dam is unique so minor changes may have to be made in the future.

Q: Are these repairs as sound as engineers can make?

A: Yes.

Q: How can you guarantee that?

A: We have contracted the services of Harza Engineering Company, world leaders in dam design, and have consulted with the Bureau of Reclamation, the largest builders of dams in the United States.

Q: What is going to be done about the concrete that has washed out?

A: The new design in the outlet tunnel will change the configuration of the present transition area. A ramp on the tunnel floor will redirect the flow of water as it comes out from below the gate. This change along with the increased aeration of the transition area will reduce the cavitation forces that have damaged the outlet tunnel in the past.

Comment: (Virgil Walker) In my letter I asked, "Why not a removal in the impact statement?" Could we have one of these? I think you are going to find that the consensus of opinion in Ravalli County and in this area is that people don't really feel the dam is necessary and has never been. Why not an impact statement on the removal of the dam?

Comment: (Stanton Cooper, President, Bitter Root Water Inc.(BWI)) We are here for the purpose of emphasizing the need of this dam, and we are looking at it from the standpoint from all the studies we've made in the past three years on the need to reserve water. In 1973, when there was a drought in this area, we used the water from Painted Rocks for irrigation purposes. The larger income of this area is definitely from agriculture. People from other states want Montana water, and they have the money to pay for it. If we people in Montana don't take action to conserve our water, we are going to loose it. We in Montana had better reserve these rights and construct these dams we have for our own use first. We of Bitter Root Water Incorporated will fight for these issues very strongly.

A: The cost of breaching the dam is estimated at close to $2,000,000. That is more money than we have to make the repairs, and more than we could probably appropriate from the State. There would be lots of studies and litigation before any action could be taken, and this would mean that the proposed repairs would have to commence as scheduled. The outlet tunnel cannot be left in its presently unrepaired condition for that long a time period.

Comment: (Bob Kline) How you are going to repair the dam and how much water you put over it is going to have a big effect on the fish life in the West Fork. Evergy time you drain the reservoir it takes three or four years to build the fish life back up again. It's not how much you spend now; we are concerned with the future.

A: Draining the reservoir is standard engineering practice, for the inspection of the entire structure from time to time. This is something that has been done fairly often in the past - about six times over the last 40 years. However, if we continue to have problems like this, we will continue to drain it. We hope these repairs will do the job so we only have to drain the lake for inspection purposes. How we are going to provide downstream flow has not been decided yet. The cost of the pipeline through the tunnel is on the order of $20,000 while the cost of pumping over the spillway could be a million.

Q: What would be the cost of installing a gate at the head of that tunnel so that there could be inspections made periodically without retarding the flow but for only a short period?

A: This type of project could not be done in lieu of the proposed repairs. The cost of such a project would surely be more than what we have to spend on the repairs.

Q: Why do you use the tunnel so much? Why not let the water run over the spillway and use the tunnel only when extra water is needed?

A: In the past, we have tried attempts at flood control with this project; however, the results are questionable. We do intend to reduce the use of the tunnel once it has been repaired.

Q: What is going to happen to the spillway when all that water keeps running over it? Why is it so steep?

A: The concrete spillway will continue to wear with use. This spillway despite its 38 years of use has sustained little damage--only a few cracks are apparent with this nearly vertical structure. The structure was designed so that the water would plunge into the stilling basin pool. The energy in this falling water would be dissipated by the large concrete blocks in the bottom of the pool.

Q: How is the concrete used in the repairs going to cure by the time the next runoff comes?

A: The contractor is going to be required to furnish heat in the tunnel and allow ample time for the concrete to cure.

Q: Wouldn't there be just as much water flowing through the river for irrigation purposes with or without the dam?

A: The dam regulates the river flows by releasing water from the reservoir. During periods of low inflow, the dam is still capable of making higher releases. This would hold true until the reservoir was drained and then inflow would equal outflow.

Q: What is the cost of extremely low flows?

A: Accurate dollar and cent values have not and cannot be arrived at because of the lack of data.

Q: Your previous remarks implied that it was impossible to pump the 100 cfs that the Fish and Game has recommended and that the only alternative you see now is to use the pipeline system. Is that correct?

A: The only alternatives now available are to use the pipeline system--or nothing. We put the other alternatives in the draft EIS to explore their possibilities and determine the costs. Now we have estimated those costs; they are restrictive.

Comment: (John Moreland - Trout Unlimited) People don't understand the importance of the fragile nature of the habitat for trout. I don't think they understand more importantly the economic impact it has on the State. The point

I am trying to make here is that I would like for people to take into account in their own minds the importance of fishing in this area, as well as good clean water and recreation. If it were gone, I feel many of the good things would be gone and so would the reason that many of us live in this valley.

Q: Couldn't you have some kind of catch basin or gathering structure below the dam to remove the sediment that washes through when the lake is drained? Also during drawdown and periodic inspection, some kind of stop-log structure to hold back the water and then release it into the stream as it is needed?

A: We have the stilling basin directly below the dam that essentially does both of these. The basin is designed to slow up the speed of the water as it leaves the dam. When it does, the larger particles that are in suspension settle out and remain in the basin until large flows over the spillway again move these particles downstream. At the end of the stilling basin is a gravel bar which again traps and slows down the flows. It also allows for a slow draining of a portion of the stilling basin after flows through the dam are temporarily shut down.

Q: If the gate were closed all summer, would there be enough water in the dam to flow over the spillway all year without supplementing it?

A: The only thing that would happen to the water is that some would evaporate. Inflow would about equal outflow over the spillway crest with the gates closed.

Q: Have any of the alternatives for providing water to the river during the repairs been compared to what the estimates are for rebuilding a fishery?

A: We have no estimates of what the fish populations were before or after the 1974 repairs, so we were not able to determine the losses. Fish and Game has stated to us that it cost them $1,400 to restock the West Fork after the 1974 repairs.

Comment: (Don Peters - Department of Fish and Game) I don't have to go into any great detail about the effects dewatering a stream has on fish so I won't comment any further. These gentlemen comment on how they don't know exactly what effect the repairs will have on the fishery, but everybody here know if you throw a trout on the bank for a few minutes--it's dead. They're talking about drawing the stream up twice for eight hours, even with a pipe through the dam. I haven't seen a trout yet that has been able to live out of the water for eight hours. It's going to be a total wipeout.

We've got about 80,000 fish based on our estimates in about seven miles of stream to the Nez Perce Fork; the majority are whitefish at various age classes. A lot of these fish are going to go out of existence. As far as displacing the fish; where do they go--fish are not that dumb, they move on out when the water starts dropping. They are going to be displaced on top of one another. Yet fish are territorial, they will not stack up on top of each other. You can't store fish. If they did, this valley would be 200 feet deep in fish. Fish are prolific; they produce a lot of eggs and produce a lot of young. Only so many can make it. Only so many can survive in a given amount of space. The river down below is already full of fish.

Q: How come they don't catch them down there then? How come they can't catch those three and four pound rainbows like they used to catch?

A: (Peters) We're talking about all different age classes. A lot of people have been commenting about how the lake has been drawn so often. You keep knocking off your younger age class and eventually there won't be any big fish.

Q: Ninety percent are whitefish. Why can't you get some fish out of the hatcheries and put them into the creek?

A: (Peters) We are right now. This is one thing that we are currently looking at--the mitigation losses on this project for the 80,000 fish. It's going to cause environmental damage and direct mortality for the fish. And we feel that these costs have nothing to do with Fish and Game. Our hatcheries have been putting 2000 catchable rainbows in the West Fork since these drawdowns have occurred, to maintain the stream as a trout fishery. Granted they're not as big, but you can't grow big fish when you don't have water the year round.

Our main point is that we would like to see the dam repaired so that it is safe. We would like for it to be done properly so that it will not have to be done again.

But there is one other thing, and that is if it is to be inspected, we would like to see it done permanently. They're talking about the cost right now and 80,000 fish. The environmental costs are going to be every five years and if they don't provide flows every five years, we are going to be wiped out every five years.

BONDY: If the river is shut off for an eight-hour period, will that destroy the fish?

A: (Peters) Sure.

BONDY: How about a one-hour period?

A: (Peters) Still talking about major effects, although I wouldn't put a number on it. These natural environments are sometimes more resilient, they will bounce back.

Comment: (Bondy) If that is true, we have inspected the dam every year since it's been constructed, sometimes more than once. Inspection required two or three hours, sometimes as long as four or five hours. During that entire time, the gate is sealed. It's going to continue to happen. There's no way of getting around it.

Comment: (UNKNOWN) That's more important than having an unsafe dam that is never inspected.

A: We wouldn't have found this problem if it were not for a normal annual inspection.

Q: Have you looked into pumping? What capacity? What size pumps?

A: It could cost roughly one million dollars to pump that much water for that long a period of time. A similar situation occurred at Tongue River last fall, and it cost $30,000 for one month at 20 cfs. There they used two 16-inch pumps each driven by 100 horsepower diesel engines.

Q: How far downstream would it be before you got additional water from tributaries to maintain suitable flow in that river?

A: In order to pick up anything close to the 100 cfs, it would be the Nez Perce Fork. That is seven miles below the dam.

Comment: (Cooper) Certainly we advocate an inspection for the safety of the dam and the people below it. We are trying to work out a happy medium and retaining, if possible, a fishery along with the other necessities.

Q: How come you can't inspect the dam during flows over the spillway?

A: Because the outlet tunnel emerges on the spillway and you can't gain access. Besides we don't know how much water collects on the tunnel floor when the water flows over the spillway.

Q: Couldn't cameras be used to inspect the tunnel?

A: No, this tunnel is something you have to get down into and see what's going on.

Q: What keeps you from going down the gate shaft to make an inspection while water flows over the spillway?

A: The problem is the difficulty in sealing the gates and the horizontal level of the tunnel. Usually it takes many attempts to seal the gates and with water over the spillway the chances are that there will be a buildup of water on the tunnel floor restricting the view of the floor.

Q: What would be the cost of a second tunnel?

A: Roughly two million dollars.

Comment: (Moreland) I'm sure that alternative would be extremely expensive; however, it seems to me that you guys have only done a lot of estimating. Your alternatives are rather narrow and limited. It doesn't seem to me that you have done enough. I don't think you have looked far enough into the future or closely enough at what it cost you in the past. It seems that what you are dealing with here is an extremely poorly designed dam. You aren't looking at the alternatives--maybe a second tunnel. In the long run, it would be less expensive than continually repairing a poor tunnel. I can see that maybe you are going to fix the cavitation problem. The next thing it's going to be that one of the gates don't work. That brings us back to the same point. A lot of these alternatives don't appear in the impact statement. Why?

A: The reason they don't appear is because we have a limit. The $400,000 we have from the SCS can only be supplemented by what the legislature gives us to operate with. We are a state agency allocated about $100,000 a year to make repairs on all of our thirty projects.

Q: Should we get on a bus and go to Helena and get more money and get it done right?

A: Seriously, that is what you might consider doing the next time the legislature meets.

Q: How long would it take to breach the dam?

A: Two years, at least, for just the construction aspect. An extensive Environmental Impact Statement would have to be prepared. There would be a lot of resistance and the decision-making process would take a year or two. It would be quite similar to building a dam--in coming up with the finances, etc.

Comment: (Cooper) It would be interesting to note that this dam is a safety factor in irrigation through the Daly Ditches system, which irrigates 14,000 acres, and to other ditch systems down the valley that could possibly buy water. So if you are looking at the possibility of breaching the dam, you will have an awful fight on your hands on this basis alone. That's not counting fisheries or recreation--just agriculture.

Q: Can't we fix it right? Stop fooling around and do it right this time?

A: As far as fixing it so it's safe, we are going to do that. As far as providing large flows downstream, we don't have the money to do that.

Q: Why don't you figure out an alternative so that the dam is fixed right? What's the cost of another tunnel? That would fix the thing and satisfy everybody. So if you are going to do something, do it right instead of patching.

A: Patching is not what we are doing. We are fixing it so that it will be safe.

Comment (Kline) If you have to inspect it every so oftem, it still isn't safe. If it's safe you don't have to inspect it.

A: We would have to inspect it no matter what we did.

Q: What do we do, where do we go? Theoretically this country is built by and for the people--government to the people. If you people want something done, get after these people, get after the legislature, form an organization and get behind the Bitter Root Water Inc. (BWI). It's got to come from the grass roots. It can't come from the DNRC because you wouldn't like it.

A: I'll say this--I can't go to the legislature and say that I want two million to put a tube through the dam. As a state official, I have to operate within the limits the legislature sets for us.

Q: Why can't you go and ask for the money to do the job you are supposed to do?

A: We do go to the legislature, but it's always with the support of the local people and they carry the ball, we don't.

Comment (Cooper) As far as the BWI is concerned, we will certainly take this matter up, if we could get a good figure to work for.

Q: With the interest that has been generated here, do you think we could go to the legislature and present our case?

Comment (Russ Bergren) I'm the appointed senator from Ravalli County, although I have never been in the legislature before. I can assure you that what I learned, while I was in Helena, is that everyone is short on money. This money would have to come from some agency of the federal government.

Meeting ended at 9:00 p.m.

## ATTENDANCE AT THE PUBLIC MEETING

The following is a list of those in attendance at the public meeting to discuss the proposed repairs to Painted Rocks Dam, held September 7, 1976, at Shooks Mountain Inn.

| Name | Title and Address |
|---|---|
| Richard Bondy | Department of Natural Resources, Helena |
| Phil Porrini | Department of Natural Resources, Helena |
| Wayne Wetzel | Department of Natural Resources, Helena |
| Alex Bailey | Department of Natural Resources, Hamilton |
| Janet DeHaven | Department of Natural Resources, Helena |
| Doug Halbraith | County Commissioner, Hamilton |
| Leonard Peterson | Bitterroot Construction District, Corvallis |
| Walker McVicar | Darby |
| Jerry Patzer | Hamilton |
| Max and Wanda Mavros | SE Hamilton |
| Cheryl Patzer | Hamilton |
| Ethelyn and Arch Little | Nez Perce Road |
| Vangha Ahlgren | Ravalli Republic, Hamilton |
| Mark Evans | Lake shore cabin, Hamilton |
| Lucille Evans | Hamilton |
| Ross Erickson | Lake shore cabin, Darby |
| Alma Smith | Cabin 3/4 mile below dam, Hamilton |
| Lou Ritchey | 4 miles below the dam, Corvallis |
| Glenn Smith | Cabin 3/4 mile below dam, Hamilton |
| Nadea Ritchey | 4 miles below the dam, Corvallis |
| Donald and Ruth Roff | Cabin 6 miles below the dam, Darby |
| Lyle and Ruth Rasmussen | Cabin-West Fork, Hamilton |
| M. L. Gaunly | Summer home, Pennsylvania |
| Roy L. and Maxine Smith | 8 miles below the dam, Darby |
| Mr. and Mrs. Wm. Conner | Conner |
| Steve Vogt | Bitterroot Conservation District, Sula |
| Donald C. Baty | P. O. Box 664, Conner |
| Gary Hassell | West Fork, Darby |
| Bob Kline | West Fork, Darby |
| John Moreland | Trout Unlimited, Hamilton |
| Tom Smith | Trout Unlimited, Hamilton |
| Virgil Walker | Star Route, Darby |
| Edward and Lucille Braach | West Fork, Missoula |
| Gertrude Walker | Star Route, Darby |
| Dee and July Morris | Star Route, Darby |
| Ed Keney | Star Route, Darby |
| Richmond H. Grant | Box 608, Conner |
| Ingval Johnson | Star Route, Darby |

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|---|---|
| Frank A. Klement | USFS, Hamilton |
| Bob Willis | USFS, Hamilton |
| Dean Byrnc | USFS, Darby |
| Joe E. Blair | Star Route, Darby |
| Roy Brogden | USFS, Darby |
| Ron Schofield | Box 914, Hamilton |
| Don Peters | Montana Department of Fish & Game, Missoula |
| Russ Marchington | Montana Department of Fish & Game, Hamilton |
| Dick Hork | Ravalli County Electric Coop., Corvallis |
| John Huggans | Conner |
| Louise and Art Cumley | Hamilton |
| Marion Scott | Star Route, Darby |
| Marge Erickson | Cabin on lake, Darby |
| Ken Robbins | Cabin on lake, Conner |
| Bunny Blodgett | Cabin on lake, Hamilton |
| Dolores Huggans | Cabin on lake, Conner |
| Eric Huggans | Conner |
| Mr. and Mrs. Paul Pagenkoff | Boulder Creek |
| Robert Kyle | Star Route, Darby |
| Faye Cooper | Rt 1, Box 1171, Hamilton |
| Stanton Cooper | Bitter Root Water Inc., Hamilton |
| Mrs. Wes Conner | Cabin above lake, Box 668, Conner |
| Mrs. Elmer Wolfinbarger | Box 547, Conner |
| Helena Kruger | Little West Fork |
| Toni Blair | West Fork-Nez Perce Road, Darby |
| Russ Bergren | Box 453, Darby |
| Lowel Honey | Box 463, Darby |
| Paul R. House | West Fork, Steep Creek, Darby |
| Charlene House | West Fork, Steep Creek, Darby |
| Roy Shook | Darby |
| Henry Rock | Box 187, Darby |
| Jon Jourdonnais | West Fork Ranger Station |
| Mark Woodgerd | West Fork Ranger Station |
| Betty Parker | Star Route, Darby |
| Fred Parker | Star Route, Darby |
| Darwin Titeca | District Director #2, BWI, Darby |
| Eric Haggans | Box 625, Conner |
| Mr. & Mrs. Wolfinbarger | Conner |
| Loretto Arendr | Star Route, Darby |

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Helena, Montana
September 14, 1976

RECEIVED
SEP 16 1976
OF NATURAL
CONSERVATION

Gary Wicks, Director
Dept. of Natural Resources & Conservation
32 South Ewing
Helena, Montana

Dear Gary:

Confirming our Mr. Whitney's conversation with your Mr. Porrini on August 9, we request that you install a pipeline in the tunnel of Painted Rocks Dam to provide a flow estimated to be about 30 cfs during the four-month period the tunnel will be shut off for repair this winter. We understand the flow will be completely shut off for 20 to 40 hours at the beginning of the project while the pipe is being installed, for a similar length of time at the end of the project while the pipe is being removed, and for approximately 8 hours sometime during the project while the alignment of the pipeline is being changed. The effect of a total 40-hour shutoff is likely to be severe. However, we expect the river would be able to recover much more rapidly from two such shutdowns than it could from being shut off totally for four months.

Sincerely,

Wes Woodgerd

WESLEY R. WOODGERD
STATE FISH AND GAME DIRECTOR

WRW/ANW/eb